**Amendments to the Claims**

Claims 1, 7, 9, 15 and 17 are amended. The listing of pending claims is respectfully provided as follows.

Listing of the Claims:

1. (Currently amended) An image rejection mixer comprising:

an in-phase mixer for mixing a received RF signal with an in-phase reference signal to produce a current mode in-phase mixed signal;

a quadrature-phase mixer for mixing the received RF signal with a quadrature-phase reference signal to produce a current mode quadrature-phase mixed signal, the quadrature-phase reference signal and the in-phase reference signal having a substantially orthogonal phase difference; and

a polyphase filter network having inputs receiving the current mode in-phase mixed signal and the current mode quadrature-phase mixed signal, wherein the current mode in-phase mixed signal and the current mode quadrature-phase mixed signal are coupled together with passive components.

2. (Original) The image rejection mixer of claim 1, wherein the inputs of the polyphase filter network are directly connected to the outputs of the in-phase mixer and the quadrature-phase mixer.

3. (Original) The image rejection mixer of claim 1, further comprising an inductor coupled between an output of the polyphase filter network and a supply voltage to convert an output of the image rejection mixer to a voltage mode signal.

4. (Original) The image rejection mixer of claim 1, wherein the received RF signal, the in-phase reference signal, and the quadrature-phase reference signal are differential signals; the in-phase and quadrature-phase mixers are differential mixers; and the polyphase filter network has two differential inputs and one differential output.

5. (Original) The image rejection mixer of claim 4, further comprising a differential inductor coupled to the differential output of the polyphase filter network and having a center tap being coupled to a supply voltage to convert a differential output of the image rejection mixer to a differential voltage mode signal.

6. (Original) The image rejection mixer of claim 1, wherein the polyphase filter network is a single-stage polyphase filter network.

7. (Currently amended) The image rejection mixer of claim 1, wherein the in-phase and quadrature-phase mixers are Gilbert mixers that share a single current source.

8. (Original) The image rejection mixer of claim 7, wherein the in-phase and quadrature-phase mixers are combined into one mixer unit having open drain outputs cascoded with the inputs of the polyphase filter network.

9. (Currently amended) A method of mixing a received RF signal with a reference signal and removing an image signal component, the method comprising:

mixing the received RF signal with an in-phase reference signal to produce a current mode in-phase mixed signal;

mixing the received RF signal with a quadrature-phase reference signal to produce a current mode quadrature-phase mixed signal, the quadrature-phase reference signal

and the in-phase reference signal having a substantially orthogonal phase difference;[[ and]]

providing a polyphase filter network to receive the current mode in-phase mixed signal and the current mode quadrature-phase mixed signal; and

joining an in-phase output and a quadrature-phase output of the polyphase filter network, so as to generate a resultant IF signal;

wherein the image signal component is cancelled from the resultant IF signal.

10. (Original) The method of claim 9, wherein the inputs of the polyphase filter network are directly connected to the current mode in-phase mixed signal and the current mode quadrature-phase mixed signal.

11. (Original) The method of claim 9, further comprising converting an output signal of the polyphase filter network to a voltage mode signal using an inductor coupling the output signal of the polyphase filter network to a supply voltage.

12. (Original) The method of claim 9, wherein the received RF signal, the in-phase reference signal, the quadrature-phase reference signal, the in-phase mixed signal, and the quadrature-phase mixed signal are differential signals; and the polyphase filter network has two differential inputs and one differential output.

13. (Original) The method of claim 12, further comprising converting a differential output signal of the polyphase filter network to a differential voltage mode signal using a differential inductor coupled to the differential output of the polyphase filter network and having a center tap being coupled to a supply voltage.

14. (Original) The method of claim 9, wherein the polyphase filter network is a single-stage polyphase filter network.

15. (Currently amended) The method of claim 9, further comprising:

providing an in-phase gilbert mixer used for mixing the received RF signal with the in-phase reference signal to produce the in-phase mixed signal; and

providing a quadrature-phase gilbert mixer used for mixing the received RF signal with the quadrature-phase reference signal to produce the quadrature-phase mixed signal;

wherein the in-phase gilbert mixer and the quadrature-phase gilbert mixer share a single current source.

16. (Original) The method of claim 15, wherein the in-phase and quadrature-phase gilbert mixers are combined into one mixer unit having open drain outputs cascoded with the inputs of the polyphase filter network.

17. (Currently amended) An image rejection mixer comprising:

an in-phase mixer for mixing a received RF signal with an in-phase reference signal to produce an in-phase mixed signal at outputs of the in-phase mixer;

a quadrature-phase mixer for mixing the received RF signal with a quadrature-phase reference signal to produce a quadrature-phase mixed signal at outputs of the quadrature-phase mixer, the quadrature-phase reference signal and the in-phase

reference signal substantially having a substantially orthogonal phase difference; and

a polyphase filter network having inputs receiving the in-phase mixed signal and the quadrature-phase mixed signal;

wherein the in-phase mixed signal and the quadrature-phase mixed signal are coupled together with passive components;

wherein the outputs of the in-phase mixer and the outputs of the quadrature-phase mixer are cascoded to the polyphase filter network.

18. (Original) The image rejection mixer of claim 17, wherein the inputs of the polyphase filter network are directly connected to the outputs of the in-phase mixer and the quadrature-phase mixer.